

Yellow Starthistle Control - SL County

Project ID: 3693

Status: Current

Fiscal Year: 2017

Submitted By: N/A

Total Acres: 0

Project Manager: Patrick Nelson

PM Agency: Salt Lake City

PM Office: Salt Lake City

Lead: Salt Lake City

WRI Region: Central

Description:

Control pioneer and established populations of Yellow Starthistle by ground herbicide applications to improve biodiversity, wildlife habitat and protect a critical water supply area. Reseed limited & remote acreage post treatment. Control 100 acres of infestation, reseed 30 acres.

Location:

City Creek Canyon is northeast of Salt Lake City, 1 mile from the State Capitol. The project area is 1.5 miles up canyon. Parleys Canyon is 20 miles east of Salt Lake City, surrounding Little Dell Reservoir on SR 65. The project area is 200 acres.

PROJECT NEED

Need For Project:

City Creek and Parleys Canyon watersheds provide critical open space and drinking water to Salt Lake City. Roughly 25% of the culinary water supply for the 440,000 people in the Salt Lake City Department of Public Utilities' service area comes from these watersheds. City Creek Canyon also acts as an urban sanctuary located just one mile from the State Capitol. The project area provide critical summer and winter habitat for mule deer, black bear, ruffed & dusky grouse, elk, moose, turkey and their respective predators. Hunting is permitted in season, motor vehicle access is limited for watershed protection, and millions of visitors utilize these canyons each year. In addition, the Parleys Canyon project area borders an important brood stock population of Bonneville cutthroat trout in Parleys Creek and Little Dell Reservoir.

A history of intensive grazing prior to watershed protection and early infrastructure development for pipelines, power lines, and communication towers created the opportunity for invasive plants to establish and spread in these canyons. In particular, Yellow Starthistle dominates open areas in City Creek and Parleys Canyons -- encroaching on native forb and grass communities which provide critical browse for wildlife and threaten the overall ecological condition and water quality of these watersheds. Yellow Starthistle is a Utah State listed noxious weed and can outcompete native range and forage plants. Its crown of toxic thorns makes the plant unpalatable to wildlife and stock and causes 'chewing disease' in several species if ingested. The thorns also severely restrict recreational use. Most importantly however Yellow Starthistle threatens water quality and quantity due to catastrophic changes in watershed vegetation, increased fire threat, and erosion.

This project will provide invasive species control of 100 acres of concentrated Yellow Starthistle infestations in City Creek and Parleys Canyon. After initial rounds of aerial applications funded by past UWRI grants, the project is focused on a ground strategy of both mopping up remnants of the larger populations as well as stamping out the smaller fires of pioneering populations dispersed by wind, ungulates and humans for the purpose of improving biodiversity, big game wildlife habitat and forage, and protecting water quality. The project will also benefit Bonneville cutthroat trout and several non-game species.

This project perpetuates the continuity of SLCDPU efforts in controlling Yellow Starthistle and restoration of native grasses and forage in City Creek and Parleys Canyons. In addition, the US Forest Service, Salt Lake County and the Utah Department of Transportation are also focusing on Yellow Starthistle eradication in Parleys Canyon in their respective jurisdictional assignments. This project will complement their efforts. Providing a strong complement to the funding already allocated by SLCDPU on an annual basis, this UWRI proposal is therefore a critical piece of our invasive species control program.

A current UWRI proposal awarded to SLCDPU for FY 2016 that involves only herbicide treatment will be implemented spring 2016.

Objectives:

Objectives:

1. Control 100 acres of concentrated Yellow Starthistle infestations in City Creek and Parleys Canyons.
2. Target smaller pioneer populations in remote, hard to reach areas, to prevent these infestations from expanding.

3. Protect a critical drinking water supply area.
4. Restore and enhance wildlife habitat, recreation, and ecological conditions.
5. Prevent the spread of infestations into pristine waters supply areas and fish and wildlife habitat including habitat for a brood stock population of Bonneville cutthroat trout.
6. Continue efforts of control & remediation of past UWRI grants.
7. Continue monitoring and mapping of invasive species to evaluate changes over time as part of adaptive management plan.
8. Augment & coordinate with US Forest Service, Salt Lake County and Utah Department of Transportation's efforts to control Yellow Starthistle in Parleys and Emigration Canyon.
9. Augment & coordinate with US Forest Service's efforts to control Yellow Starthistle in Davis County on federal land.
10. Reseed 30 acres of Yellow Starthistle habitat impacted by disturbance of YST and subsequent treatment.

Threats / Risks:

1. Decreased water quality and quantity due to catastrophic changes in watershed vegetation.
2. Altered fire regime and increased fire threat in a drinking water supply area.
3. Loss of biodiversity and ecosystem conditions due to invasive species monoculture.
4. Decreased habitat for wildlife and native plants.
5. Decreased recreation use in highly valued community open space.
6. Increased risk of infestation spillover due to high levels of recreational utilization of project areas.

Relation To Management Plan:

This proposal meets roughly 12 objectives and goals of four different plans.

According to the Utah Wildlife Action Plan, this project is located within a transition zone of shrub steppe to Northern oak and mountain shrub habitats. City Creek is a narrow canyon covering a 19 square miles and Parleys Canyon is broader covering 50 square miles. Both watersheds peak at elevation 9,400 ft. These high quality watersheds provide critical habitat and forage for big game including mule deer, elk, and moose.

Parleys Creek, Lambs Creek, and Little Dell Reservoir are managed for Bonneville cutthroat trout and all project areas provide drinking water for the Salt Lake City metropolitan area. The Yellow Starthistle infestations targeted in this proposal seriously compromise these critical shrub steppe habitats and wildlife forage, and threaten the integrity of the riparian habitats as well. This project will further two of three goals of Utah Watershed Restoration Initiative by restoring and managing these diverse watersheds to enhance "wildlife and biological diversity" and "water quality and yield for all uses."

Salt Lake City Department of Public Utilities owns 30,139 acres of land in City Creek, Emigration, Parleys, Mill Creek, Big Cottonwood, and Little Cottonwood Canyons for the purpose of protecting drink water quality. To further this goal, the Department of Public Utilities focuses on land stewardship and invasive species control in City Creek and Parleys Canyon and works cooperatively with the US Forest Service, Utah Department of Transportation, Salt Lake County, and Cottonwood Canyons Foundation to ensure that invasive plant species are also controlled within all areas of the protected watershed. This project is beneficial to Salt Lake City Department of Public Utilities' efforts to create and implement a watershed wide, collaborative integrated invasive species management plan. The City's invasive species management plan was developed and is implemented as part of the Bonneville Cooperative Weeds Management Area (BCWMA) and its participants.

Watershed Wasatch Legacy Partnership -- Priority Project

The Wasatch Legacy Partnership is a collaborative effort between the Uinta-Wasatch-Cache National Forest, Snowbird, Brighton, Alta, Solitude, The Cottonwood Canyons Foundation, the Friends of Alta, the Salt Lake Climbers Alliance, the SLC Department of Public Utilities, SL County, the National Forest Foundation, the Town of Alta, Save our Canyons along with other organizations. Focusing on collaborative projects as both stewards of the landscape and existing recreational opportunities, eradicating Yellow Starthistle was selected as a project and priority for the collective. This prioritization had funding in years past but will most likely not see funding from the USFS in summer 2015 due funding shortages. SLCDPU will still continue its control efforts.

Utah Mule Deer Plan

Corresponding (past) goals that this grant application supports:

Habitat Objective 1: Maintain Mule deer habitat throughout the state by protecting and enhancing existing crucial habitats and mitigating those for losses due to natural and human impacts.

Strategy b: Work with land management agencies and private landowners to identify and properly manage crucial mule deer habitats, especially fawning and wintering areas. The project area is a wintering area for mule deer.

Habitat Objective 2: Improve the quality and quantity of vegetation for mule deer on a minimum of 500,000

acres of crucial range by 2013.

Strategy C: Initiate broad scale vegetative treatment projects to improve mule deer habitat ...

Utah Elk Plan

Corresponding goals that this grant application supports:

Habitat Objective Goal 2. "Improve the quality and quantity of forage and cover on 250,000 acres of elk habitat with emphasis on calving habitat and upper elevation elk winter range by the end of this plan" and

Strategy N, "Work with state and federal land management agencies and county weed boards to control the spread of noxious and invasive weeds throughout the range of elk in Utah," and

Strategy D, "Initiate broad scale vegetative treatment projects to improve elk habitat with emphasis on calving habitat and winter ranges." City Creek is a heavily utilized wintering ground by elk herds, as evidenced by the fact that game retrieval permits are regularly issued in winter months during late season cow elk hunts.

Forest Plan of the Uinta Wasatch Cache National Forest Service:

Desired Condition

Established noxious weed infestations are not increasing or reduced to low densities. New invader species are not becoming established. New infestations of species are contained or reduced. New populations of existing noxious weeds are eradicated or reduced in highly susceptible, often disturbed, areas. Native plants dominate most landscapes that have been rehabilitated.

Forest-Wide Goals and Objectives:

Goals:

2a. Identify areas not in properly functioning condition. Improve plant species composition, ground cover and age class diversity in these areas.

2b. Maintain and/or improve water quality to provide stable and productive riparian and aquatic ecosystems.

2f. Maintain water in streams, lakes, and wetlands of adequate quantity and quality to provide for instream flows and existing downstream uses including support of healthy riparian & aquatic habitats, stability & effective function of stream channels, ability to route flood discharges, and to maintain recreation opportunities.

2i. Maintain and/or restore soil productivity to improve watershed functioning through managing groundcover, soil compaction, and vegetation.

2j. Maintain and/or restore habitat to sustain populations of well distributed native and desired non-native plant, vertebrate, and invertebrate populations that contribute to viability of riparian dependent communities.

3b. Maintain pollinators and minimize impacts to pollinators or their habitats.

3d. Restore or maintain fire-adapted ecosystems (consistent with land uses, historic fire regimes, and other Forest Plan direction) through wildland fire use, prescribed fire, timber harvest or mechanical treatments. See Forestwide Guideline (G for desired landscape structure and patterns).

3f. Maintain or restore species composition, such that the species that occupy any given site are predominantly native species in the kind and amount that were historically distributed across the landscapes.

3i. Provide suitable habitat for prey species such as hares, squirrels, and small mammals.

3n. Maintain or restore aquatic and riparian habitats, through recognition and management of Riparian Habitat Conservation Areas (defined in Glossary) for metapopulations of cutthroat trout, recognizing the relative degree to which these fish depend on National Forest lands and conditions of these habitats off-forest.

3o. Provide adequate habitat components for sustainable big game populations coordinated with State wildlife management agencies, private lands and other resource needs and priorities.

3q. In revegetation projects establish a variety of native species (avoiding monocultures).

3s. Greatly reduce known infestations of noxious weeds and rigorously prevent their introduction and/or spread.

4d. Reduce hazardous fuels (prescribed fire, silvicultural and mechanical treatments) with emphasis on interface communities (wildland/urban) and increase proactive participation of communities at risk.

Objectives:

1.b. Develop key messages for focus areas within 1 year and set measurable education/enforcement goals.

Focus areas are: OHV use, recreation user ethics, role of fire and fuels hazards, noxious weeds, and watershed health.

4.a. Treat approximately 2,000 wildland urban interface acres annually for a 10-year total of 20,000 acres.

4.c. Expand community participation in fuels treatment and restoration and assist in the development of community fire plans by assisting State and private groups to develop 3 to 5 fuel reduction plans annually.

5.f. Assess and prioritize noxious weed infestations for appropriate treatment within 1 year.

Finally, when the UWRI Yellow Starthistle Management Project was initiated in FY10 outreach to the Salt Lake City community began immediately. Salt Lake City staff met with community councils and City Creek Canyon recreation user groups. The project was presented to the City Council, Public Utilities Advisory Council, and the Greater Avenues and Capitol Neighborhood Councils. These groups have been consistently supportive of Salt

Lake City's and the BCWMA's invasive species control efforts. Community approval of this new project was mandatory and was achieved. In addition, Salt Lake City Public Utilities has kept neighborhood councils up to date on the progress and successes of the project with annual reporting and presentations. The broader community was also receptive to the project with the Deseret News, Salt Lake Tribune, KUTV, KSL, FOX, KCPW Radio and KUER Radio positively covering the initial helicopter spray in 2010. The Deseret News, Salt Lake Tribune and KUER Radio also followed up with stories on the success of the helicopter spray in November 2011. This community support provides the foundation for success in implementing our invasive species control plan and achieving watershed restoration in City Creek and Parleys Canyons.

Fire / Fuels:

The aggressive and insidious nature of yellow starthistle elevates the wildfire danger in the project area habitats that it has invaded. The plant has a tendency to become 100% cover class, if left alone, and even outcompetes cheat grass. Given that this plant senesces at the same time and subsequently cures in the late summer heat, it contributes the risk of wildfire in the culinary watershed area for SLCDPU.

As a drinking water utility that relies on surface water supplies for over 60% of its culinary water supply, SLCDPU will be undertaking wildfire risk and management planning via a budget line item slated for approval in the 2017 budget, initial conversations with the Utah Division of Forestry and Fire's Urban Interface Coordinator have identified this weed and its wide distribution as a risk and something to consider in overall fuels reduction strategies and planning.

Industry wide, areas that rely on surface water for its raw water supply, such as Denver, have suffered heavily in the aftermath of wildfires in the culinary watershed. This attempt to reduce the spread of the weed is in recognition of the important of healthy source water areas and the impact that wildfire can have on them.

Water Quality/Quantity:

As a public utility, SLCDPU provides drinking water for 440,000 customers on a daily basis, year round. With 60% of its source water coming from the protected watersheds in the form of surface water, SLCDPU is highly concerned about both the water quality and quantity impacts to our source water areas that invasive weeds and their associated threats bring to the existing ecosystem services that provide a large percentage of the drinking water supply to the second most arid state in the nation's population center.

City Creek and Parleys canyons combined provide roughly 25% of the total water supply and historically have more aggressive fire regimes than other canyons such as Little and Big Cottonwood Canyon. During Summer 2015, Parleys Canyon had two wildfires within weeks, one caused by lightning and the other by a shooting range.

Significant time and financial investments have been made by increasingly redirecting seasonal & permanent staff away from pre-existing tasks to map, spray and reseed the areas impacted by not only Yellow Star Thistle, but also other invasive weeds.

Industry wide, areas that rely on surface water for its raw water supply, such as Denver, have suffered heavily in the aftermath of wildfires in the culinary watershed. This attempt to reduce the spread of the weed is in recognition of the important of healthy source water areas and the impact that wildfire can have on them.

Compliance:

SLC Watershed Protection Ordinance 17.04

Herbicides to be used must be compliant with the approved list of herbicides outlined by Salt Lake City Watershed Protective ordinance 17.04. In addition, any plants found within 100 feet of water will be mechanically treated, compliant with ordinance requirements. The herbicides Milestone and Escort are slated for use, both are permitted via 17.04.

Wasatch-Cache Noxious Weeds EIS

All activities, if performed on federally managed lands, are compliant with this EIS.

Methods:

1. Small/Remote Populations: Ground spot spray herbicide in project area infestations June & July 2017. Due to exceedingly difficult working conditions of summer heat and steep mountainous terrain, project priority is placed on these harder to reach, pioneering populations. This is the bulk of the work for the project area.

2. Larger Populations: Ground spot spray herbicide in project areas utilizing UTVs, truck sprayers, etc. These larger populations include the main road in City Creek Canyon, Little Dell Reservoir Recreation Area and Little Dell Reservoir Mitigation Parcels. Preference is for contractor to map both treatment areas and amount of herbicide placed in these areas.

3. Reseeding: For FY 2017, the priority will be on the remote small infestations and getting other species established in these infestations. Both SLCDPU and UCC will hike to the priority remote populations in the fall. Scarification will be employed with rakes and broadcast seeders in these infestations.

4. Monitor, photograph and map of Yellow Starthistle effects within the treatment areas to document effectiveness of treatments and outline priorities for 2017.

Notes: Herbicide applications will be facilitated by the Utah Conservation Corps and the Salt Lake City Department of Public Utilities. Mapping and project management will be provided by Salt Lake City Department of Public Utilities.

Salt Lake City Public Utilities will provide a truck mounted herbicide sprayer, ATV herbicide sprayer, herbicide for SLCDPU efforts and backpack sprayers as well as GIS mapping hardware (iPads & collector in the field) and 4x4 trucks. SLCDPU and UCC crews will document treatment parcels and surveyed areas utilizing recently iPads and ESRI Collector using standardized weed mapping/treatment data dictionaries. SLCDPU will supply herbicide, surfactant and dye for the project. UCC and SLCDPU crews will use their respective backpack sprayers.

Monitoring:

- 1) Treatment areas will be monitored for herbicide efficacy and to ensure that plants have reacted to application
- 2) Repeat applications of herbicide may be necessary, other methods of treatment may be attempted
- 3) Areas immediately adjacent will be surveyed for presence/absence of Yellow Starthistle and mapped
- 4) Areas reseeded will be monitored the following spring for determination of success, methods and efforts will be adjusted accordingly, including seed mix.
- 5) Photopoints will be established to monitor long term efficacy of treatments
- 6) Mapping of herbicide applications & Yellow Starthistle populations will be done with ESRI collector software on daily basis after crews have worked in areas. Polygon & point data, depending on the situation will be collected.

Partners:

Utah Department of Transportation:

Roadway control & treatment of Yellow Starthistle on SR 65.

Uinta-Wasatch-Cache National Forest:

Summer weed control via budgeted spray crews & applications for grants to contract with Utah Conservation Corps.

Salt Lake County & Bonneville Coordinate Weed Management Association:

Mowing & spot spraying along Emigration Canyon road in right of way.

Purchase, release & monitoring of biocontrols in Emigration Canyon.

Davis County Weed Supervisor:

Coordination of awareness & spray efforts on Davis County side of the City Creek Canyon/Davis County ridgelines.

Utah Division of Wildlife Resources Dedicated Hunter Program :

Volunteer hours from Dedicated Hunter Program members that participate in the mechanical control of Yellow Star Thistle Populations in Parleys & City Creek Canyon.

Utah Division of Forestry, Fire and State Lands:

Long-term planning and coordination looking into the way in which SLC handles wildfire planning, including fuels management.

Future Management:

The long term goal is to reduce the need to spray the existing populations of Yellow Starthistle, restore all disturbed areas and shift into an Early Detection, Rapid Response model.

Short term goals are to continue eradicating via herbicide treatment and mechanical methods while ramping up the reseeding efforts with both staff and community volunteers.

Domestic Livestock Benefit:

Not applicable. The protective ordinances for the watershed areas (Salt Lake City 17.04, Salt Lake County Health Department Regulation #14, etc.) do not allow domestic livestock in these areas.

BUDGET	WRI/DWR	Other	Budget Total	In-Kind Total	Grand Total
	\$40,000.00	\$9,000.00	\$49,000.00	\$36,928.00	\$85,928.00

Item	Description	WRI	Other	In-Kind	Year
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Item	Description	WRI	Other	In-Kind	Year
Contractual Services	Utah Conservation Corps Crews to treat Yellow Starthistle populations via herbicide and mechanical methods. Three x four member crews for four weeks. Present rate is \$3,000/week per crew, funds requested reflect possible rate changes.	\$38,000.0	\$0.00	\$0.00	2017
Contractual Services	Utah Conservation Corps Crews 1 x four person crew @ \$3,000 week for three weeks. Funded FY 2016 by SLCDPU	\$0.00	\$9,000.00	\$0.00	2017
Personal Services (seasonal employee)	Salt Lake City Department of Public Utilities seasonal crews spraying @\$22/hour for 500 hours.	\$0.00	\$0.00	\$11,000.0	2017
Other	Division of Wildlife Resources Dedicated Hunter Volunteers & Community Group Volunteers - mechanical removal of Yellow Starthistle. 150 hours @ \$20/hour	\$0.00	\$0.00	\$3,000.00	2017
Personal Services (permanent employee)	Salt Lake City Department of Public Utilities Permanent Crews spraying Yellow Starthistle, coordinating volunteers, etc.- 50 hours @ \$22/hour	\$0.00	\$0.00	\$1,100.00	2017
Equipment Rental/Use	Salt Lake City Department of Public Utilities - truck mounted herbicide sprayer @ \$25/hr x 128 hours	\$0.00	\$0.00	\$3,200.00	2017
Equipment Rental/Use	Salt Lake City Department of Public Utilities - Polaris side x side sprayer @\$20/hr x 64 hours	\$0.00	\$0.00	\$1,280.00	2017
Equipment Rental/Use	Salt Lake City Department of Public Utilities - 4x4 Pickup Trucks (2) @\$18/hr x 288 hours	\$0.00	\$0.00	\$5,184.00	2017
Personal Services (permanent employee)	Salt Lake City Department of Public Utilities - Field monitoring, mapping & project management - 240 hours @ \$29/hour	\$0.00	\$0.00	\$6,960.00	2017
Personal Services (permanent employee)	Utah Department of Transportation - Roadside herbicide treatment of Yellow Starthistle on SR 65 - 32 hours @ \$22/hour	\$0.00	\$0.00	\$704.00	2017
Materials and Supplies	Salt Lake County - purchase of Yellow Starthistle biocontrol	\$0.00	\$0.00	\$4,500.00	2017
Seed (GBRC)	Purchase of seed	\$2,000.00	\$0.00	\$0.00	2017

FUNDING	WRI/DWR	Other	Funding Total	In-Kind Total	Grand Total
	\$40,000.00	\$9,000.00	\$49,000.00	\$36,928.00	\$85,928.00

Source	Phase	Description	Amount	Other	In-Kind	Year
NWTF	NS652		\$4,000.00	\$0.00	\$0.00	2017
RMEF	NS652		\$5,000.00	\$0.00	\$0.00	2017
Safari Club International	NS652		\$2,000.00	\$0.00	\$0.00	2017
Salt Lake City Corporation		Utah Conservation Corps - 1 crew, 3 weeks @ \$3,000/week	\$0.00	\$9,000.00	\$0.00	2017
Salt Lake County		Purchase of Yellow Starthistle biocontrols	\$0.00	\$0.00	\$4,500.00	2017
Volunteers - Dedicated Hunters		DWR Dedicated Hunter & Community Volunteers - mechanical removal of Yellow Starthistle - 150 hours @ \$20/hour	\$0.00	\$0.00	\$3,000.00	2017

Source	Phase	Description	Amount	Other	In-Kind	Year
DNR Watershed	N362		\$29,000.0	\$0.00	\$0.00	2017
Other		UDOT SR 65 Roadside Spraying	\$0.00	\$0.00	\$704.00	2017
Salt Lake City Corporation		Cumulative treatment efforts	\$0.00	\$0.00	\$28,724.0	2017

EXPENSE	WRI/DWR	Other	Expense Total	In-Kind Total	Grand Total
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Source	Phase	Description	Amount	Other	In-Kind	Year
NWTF	NS652	N/A	\$0.00	\$0.00	\$0.00	
RMEF	NS652	N/A	\$0.00	\$0.00	\$0.00	
Safari Club International	NS652	N/A	\$0.00	\$0.00	\$0.00	
Salt Lake City Corporation		N/A	\$0.00	\$0.00	\$0.00	
Salt Lake County		N/A	\$0.00	\$0.00	\$0.00	
Volunteers - Dedicated Hunters		N/A	\$0.00	\$0.00	\$0.00	
DNR Watershed	N362	N/A	\$0.00	\$0.00	\$0.00	
Other		N/A	\$0.00	\$0.00	\$0.00	
Salt Lake City Corporation		N/A	\$0.00	\$0.00	\$0.00	

SPECIES

Species	"N" Rank	HIG/F Rank
Mule Deer		1
Threat		Impact
Inappropriate Fire Frequency and Intensity		High
Not Listed		NA
Elk		2
Threat		Impact
Not Listed		NA
Ruffed Grouse		2
Threat		Impact
Not Listed		NA
Moose		3
Threat		Impact
Not Listed		NA
Black Bear		N/A
Threat		Impact
Not Listed		NA
Bonneville Cutthroat Trout	N4	1
Threat		Impact
Inappropriate Fire Frequency and Intensity		Very High
Invasive Wildlife Species - Non-native		High

Species	"N" Rank	HIG/F Rank
Wild Turkey		1
Threat	Impact	
Not Listed	NA	

HABITATS

Habitat	
Gambel Oak	
Threat	Impact
Invasive Plant Species – Non-native	Medium
Mountain Shrub	
Threat	Impact
Invasive Plant Species – Non-native	Medium
Seeding Non-native Plants	Medium

PROJECT COMMENTS

Comment	02/02/2016	Type: Project	Commenter	Alison Whittaker
Approved to go forward to ranking - CRO UPCD				

COMPLETION

Start Date:

End Date:

FY Implemented:
2017

FY Completed:

Final Methods:
N/A

Project Narrative:
N/A

Future Management:
N/A

Map Features

ID	Feature Category	Action	Treatment/Type
5153	Affected Area	N/A	N/A